ORIGINAL ARTICLE

Role of Character Strengths in Outcome After Mild Complicated to Severe Traumatic Brain Injury: A Positive Psychology Study

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Abstract

Objective: To examine the effects of character strengths on psychosocial outcomes after mild complicated to severe traumatic brain injury (TBI).

Design: Prospective study with consecutive enrollment.

Setting: A Midwestern rehabilitation hospital.

Participants: Persons with mild complicated to severe TBI (N=65).

Interventions: Not applicable.

Main Outcome Measures: Community Integration Measure, Disability Rating Scale, Modified Cumulative Illness Rating Scale, Positive and Negative Affect Schedule, Satisfaction with Life Scale, Values in Action Inventory of Strengths, and Wechsler Test of Adult Reading.

Results: Character virtues and strengths were moderately associated with subjective outcomes, such that there were fewer and less strong associations between character virtues/strengths and objective outcomes than subjective outcomes. Specifically, positive attributes were associated with greater life satisfaction and perceived community integration. Fewer and less strong associations were observed for objective well-being; however, character strengths and virtues showed unique value in predicting physical health and disability. Positive affectivity was not meaningfully related to objective outcomes, but it was significantly related to subjective outcomes. In contrast, negative affectivity was related to objective but not subjective outcomes.

Conclusions: Given the strength of the associations between positive aspects of character or ways of perceiving the world and positive feelings about one's current life situation, treatments focused on facilitating these virtues and strengths in persons who have experienced TBI may result in better perceived outcomes and potentially subsequently lower comorbidities.

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Rehabilitation specialists have focused on the prediction of deficits and the identification of interventions that ease the impact of traumatic brain injury (TBI).[1] Some researchers, however, have challenged the field to focus on the prediction and augmentation of character strengths.[1-5] Positive psychology promotes the idea that professionals should be as concerned with strength as with

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weakness, a natural fit for TBI rehabilitation that facilitates positive outcomes. Research on character strengths is crucial given recent empirical evidence that psychological "well-being" and "ill-being" act more like distinct constructs than extreme ends of a single continuum.[6] As such, the assumption that easing suffering will augment happiness may not be tenable.

Peterson and Seligman[7] proposed a classification scheme of human virtues and strengths, in which strengths can also be conceptualized as character traits, and virtues are classes of character strengths. Their classification of strengths of virtues[7] posits the existence of 6 major "virtues" that show individual differences but relative cross-cultural stability: wisdom, courage, humanity, justice, temperance, and transcendence.[2] Within each

virtue category, strengths were identified based on their ubiquity, contribution to individual fulfillment, moral value, measurability, existence of a "nonfelicitous opposite," and trait-like characteristics.[8] Strengths were included only if there was no tendency for them to "diminish others" (eg, producing jealousy). The 24 character strengths proposed by Peterson and Seligman are more focused on specific aspects of personality than other commonly well-known personality models or theories (eg, the Big Five[9]) and likely reflect a more complex description of traits reflected in a person's thoughts, feelings, and behaviors, given that for each of the 6 overarching virtues, there is a refinement of the construct into 3 or 5 specific components. This process resulted in the classification scheme described in table 1.

Among potential applications of Classification of Strengths and Virtues, Peterson et al[10, 11] have reported on the mediating role of character strengths in the relationship between life stressors (physical illness, psychological disorder, trauma) and subjective quality of life as reflected in life satisfaction. Given the definition of a strength as psychologically fulfilling such that it contributes to individual satisfaction and happiness, Park et al[12] found that character strengths in the Values in Action classification were generally associated with life satisfaction. Additionally, extreme strengths of character were not associated with reduced life satisfaction (eg, women who love too much). A character strength less strongly associated with life satisfaction included modesty, which was a cross-cultural finding.[12] Other strengths less strongly associated with life satisfaction included appreciation of beauty, creativity, judgment, and love of learning (eg, intellectual strengths).

Peterson[13] examined the relationships between character strengths and life satisfaction in clinical groups. After physical injury, the character strengths of bravery, kindness, and humor were partial mediators of the relationship between physical illness and life satisfaction. Character strengths of bravery, kindness, and spirituality were partial mediators of the relationship between trauma and life satisfaction. This study provides an opportunity to examine these issues in persons with TBI who are adjusting to life 6 months to 2 years postinjury. Given that this is the first study of its kind to our knowledge, the goals of this investigation were to (1) determine the associations of character strengths with objective and subjective outcomes for persons with TBI; and (2) conduct an exploratory examination of factors that might mediate between character strengths and outcome after TBI.

Methods

Participants

Sixty-five adults (85% men) with mild complicated to severe TBI (median Glasgow Coma Scale [GCS] score, 7) were consecutively

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List of abbreviations:

CIM	Community Integration Measure
DRS	Disability Rating Scale
GCS	Glasgow Coma Scale
MCIRS	Modified Cumulative Illness Rating Scale
PANAS	Positive and Negative Affect Schedule
PANAS-NA	PANAS-Negative Affectivity
PANAS-PA	PANAS-Positive Affectivity
SWLS	Satisfaction With Life Scale
TBI	traumatic brain injury
VIA−IS	Values in Action Inventory of Strengths
WTAR	Wechsler Test of Adult Reading

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recruited from a large Midwestern rehabilitation hospital. Only persons with complicated mild injuries, those with a GCS score of 13 to 15 with intracranial hemorrhage, are enrolled because such injuries have been shown to resemble moderate TBI.[14,15] Table 2 presents demographic and injury characteristics. Fifty-five percent of participants identified themselves as African American, 40% white, and 5% as other. Causes of injury were vehicular (46%), violence related (33%), falls (19%), and other (2%).

Measures

The Wechsler Test of Adult Reading (WTAR)[16] was used as a measure of premorbid intelligence quotient. Objective measures of outcome included the level of disability as measured by the Disability Rating Scale (DRS),[17] and the Modified Cumulative Illness Rating Scale (MCIRS), which quantifies current comorbid diseases by classifying conditions in 14 organ systems using a system that rates comorbidities on a scale from 0 to 4 (0, none; 1, mild; 2, moderate; 3, severe; 4, extremely severe/life threatening).[18] This measure was slightly modified because the neurologic domain was not rated, since participants had already sustained a neurologic insult and we were interested in other components of physical disease. A nurse, who was also the research coordinator for this project, scored the MCIRS. Good reliability and validity have been reported for this measure in a variety of patient populations.[19-22]

Subjective outcomes included the Positive and Negative Affect Schedule (PANAS),[23] which measures positive and negative affectivity and has shown good reliability and validity in a variety of populations[23-25]; the Satisfaction With Life Scale (SWLS),[26] which has been normed and validated in TBI[27,28]; and the Community Integration Measure (CIM),[29] which assesses perceived quality of community integration, an independent aspect of community integration separate from measures that quantify just the number of hours that a person engages in an activity[30] and social support.[29]

The Values in Action Inventory of Strengths (VIA-IS) was developed by Peterson and Seligman[7] to assess the 6 virtues and 24 character strengths in *Character Strengths and Virtues: A Handbook of Classification* (see table 1). Virtues are the overarching categories that reflect domains of character strengths. A total of 140 items are endorsed using a 5-point Likert-type scale with the following response choices: "very much like me," "like me," "neutral," "unlike me," and "very much unlike me." Each character strength is assessed by 10 questions, and scores are calculated for each of the strengths by averaging responses within the scale (higher scores represent higher levels of the trait). Virtues are calculated by collapsing individual scores from each of the character strength subscales that make up the overarching virtue category. No items were left blank, as the online assessment program and the research coordinator ensured that all questions were answered. The measure has excellent psychometric properties from the more than 150,000 adults who took the survey on the authentichappiness.com website.[7]

Procedure

The study was approved by the institution's human investigation committee, and participants who were 6 to 24 months postinjury were recruited from the hospital's TBI research registry. Participants were not recruited on hospital discharge because it was believed that to measure the constructs of interest in this study,